

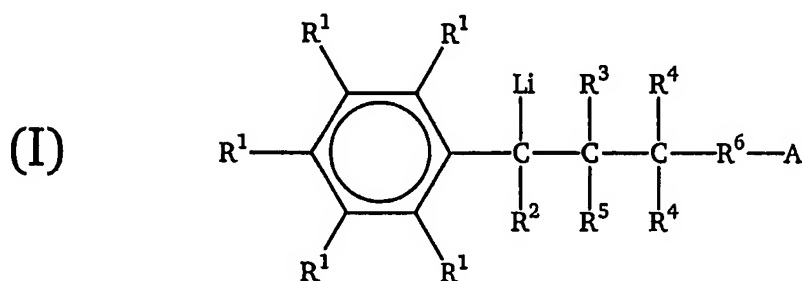
## CLAIMS

What is claimed is:

1. A process for preparing a functionalized anionic polymerization initiator, the process comprising:

5 combining a functionalized styryl compound and an organolithium compound.

2. An anionic polymerization initiator defined according to the formula I:



10

where each R<sup>1</sup> is independently hydrogen or a hydrocarbyl group, R<sup>2</sup> is hydrogen or a hydrocarbyl group, R<sup>3</sup> is hydrogen or a hydrocarbyl group, each R<sup>4</sup> is independently hydrogen or a monovalent organic group, R<sup>5</sup> is a hydrocarbyl group, where at least one of R<sup>3</sup> or R<sup>5</sup> is hydrocarbyl, R<sup>6</sup> is a covalent bond or a hydrocarbylene group, and A is a functional group.

15

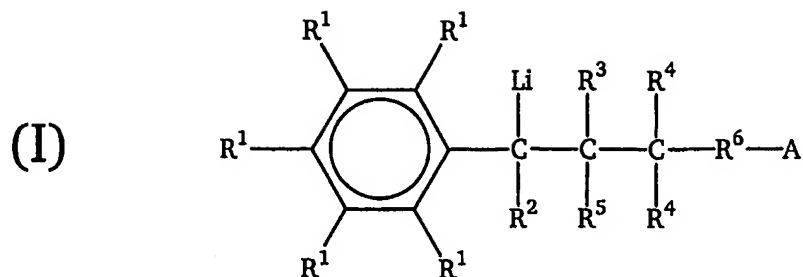
3. A polymer prepared by a process comprising the steps of:

20

polymerizing monomer with an initiator that is prepared by combining a functionalized styryl compound and an organolithium compound.

4. The process of claim 1, or polymer of claim 3, where the functionalized styryl compound is defined by

25



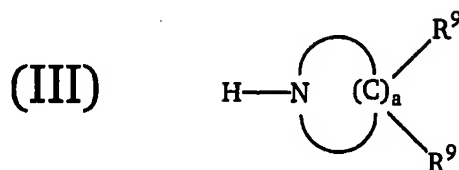
where each  $\text{R}^1$  is independently hydrogen or a hydrocarbyl group,  $\text{R}^2$  is hydrogen or a hydrocarbyl group,  $\text{R}^3$  is hydrogen or a hydrocarbyl group, each  $\text{R}^4$  is independently hydrogen or a monovalent organic group,  $\text{R}^5$  is a hydrocarbyl group,  $\text{R}^6$  is a covalent bond or a hydrocarbylene group, and A is a functional group.

5. The process of claim 1, or polymer of claim 3, where the functionalized styryl compound is *N*-(cinnamyl): -pyrrolidine, -3-methylpyrrolidine, -3,4-dimethylpyrrolidine, -3,3-dimethylpyrrolidine, -piperidine, -4-methylpiperidine, -3-methylpiperidine, -morpholine, -4-methylpiperazine, -4-ethyl-piperazine, -4-propylpiperazine, -hexamethyleneimine (or -perhydroazepine), -trimethylperhydroazepine, -azacyclotridecane, -azacyclohexadecane, -azacycloheptadecene, -trimethylazabicyclooctane, or -perhydroisoquinoline, -perhydroindole.

6. The process of claim 1, or polymer of claim 3, where said step of combining combines about 0.8 mmol of the cyclic-amino functionalized styryl compound with about 1.0 mmol of the organolithium compound.

7. The process of claim 1, or polymer of claim 3, where step of combining occurs in the presence of about 1 to about 20 mmol of monomer in order to chain extend the initiator.

8. The process of claim 1, or polymer of claim 3, where the cyclic amine compound is defined by the formula III



5 where each  $R^9$  is independently hydrogen or a monovalent organic group and  $a$  is an integer from 4 to about 18.

9. The process of claim 1, or polymer of claim 3, where the functionalized styryl compound is prepared by combining a reactive styryl compound and a  
10 functionalized nucleophile.

10. The process of claim 1, or polymer of claim 3, where the functionalized styryl compound is prepared by combining a reactive styryl compound and a functionalized electrophile.

15

